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EXAMINER

LIN, KENNY S

ART UNIT

PAPER NUMBER

2154

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/650,254	CHIN, HON WAH	
	Examiner Kenny Lin	Art Unit 2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 30 August 2004.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-21 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____

5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____

DETAILED ACTION

1. In view of the Appeal Brief filed on 8/30/2004, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

2. Claims 1-21 are presented for examination.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-8, 10-11, 13-14 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Judd et al (Judd), US 5,465,251.

5. As per claim 1, Judd taught the invention as claimed including an address protocol for forwarding a message packet from a source node to a destination node along a sequence of communicatively coupled nodes functioning as a linear chain network (col.2, lines 26-31, col.5, lines 55-59; strings), the address protocol comprising:

- a. A relative destination address field including a counter programmed with an initial value at the source node corresponding to a destination node that is a preselected number of nodes away from the source node along the linear chain network (col.2, lines 3-18, 32-41, col.7, lines 64-67);
- b. Wherein the counter is adjusted by a preselected step in value at each node the message packet is forwarded to along the chain network until the counter reaches a trigger value indicating that the destination node has been reached (col.2, lines 3-18, 32-41, col.8, lines 44-61), and
- c. Wherein the destination node does not require address information in addition to the counter reaching the trigger value to accept the message packet (col.2, lines 36-39).

6. As per claim 5, Judd taught the invention as claimed including an address protocol for forwarding a message packet from a source node to a destination node along a sequence of communicatively coupled nodes functioning as a linear chain network (col.2, lines 26-31, col.5, lines 55-59; strings), the address protocol comprising:

- a. An identifier field containing an identifier to identify the message packet as having a relative address protocol (col.6, lines 14-15); and

- b. A relative destination address field including a counter programmed with an initial value at the source node corresponding to a destination node that is a preselected number of nodes away from the source node along the linear chain network (col.2, lines 3-18, 32-41, col.7, lines 64-67);
- c. Wherein the counter is adjusted by a preselected step in value at each node the message packet is forwarded to along the chain network until the counter reaches a trigger value indicating that the destination node has been reached (col.2, lines 3-18, 32-41, col.8, lines 44-61), and
- d. Wherein the destination node does not require address information in addition to the counter reaching the trigger value to accept the message packet (col.2, lines 36-39).

7. As per claim 14, Judd taught the invention as claimed including a method of sending a message packet along a portion of a network functioning as a linear chain network from a source node to a destination node using an address protocol having an identifier to identify the message packet as having a relative address protocol (col.2, lines 26-31, col.5, lines 55-59, col.6, lines 14-15), a relative source address field for storing an initial value, and a relative destination address field containing a counter (col.2, lines 3-18, 32-41, col.7, lines 64-67), the method comprising the steps of:

- a. Selecting an initial value that is a function of a desired number of node hops along the linear chain network from the source node (col.2, lines 3-18, 32-41, col.7, lines 64-67);

- b. Programming the counter to have the initial value (col.2, lines 3-18, 32-41, col.7, lines 64-67);
- c. Adjusting the counter by a preselected step in value at each node that the message packet is forwarded to (col.2, lines 3-18, 32-41, col.8, lines 44-61); and
- d. Accepting the message packet at a destination node when the counter value reaches a preselected trigger value without requiring address information in addition to the counter reaching the trigger value to accept the message packet (col.2, lines 3-18, 32-41, col.8, lines 44-61);

Wherein the preselected step in value is chosen so that the counter reaches the trigger value when the packet has completed the desired number of node hops (col.2, lines 3-18, 32-41, col.8, lines 44-61).

8. As per claim 18, Judd taught the invention as claimed including a method of sending a message packet along a chain network having regenerator nodes from a source node to a destination node using an address protocol having an identifier to identify the message packet as having a relative address protocol (col.2, lines 26-31, col.5, lines 55-59, col.6, lines 14-15), a relative source address for storing an initial value, and a relative destination address field containing a counter (col.2, lines 3-18, 32-41; col.7, lines 64-67), the method comprising the steps of:

- a. Selecting an initial value that is a function of a desired number of node hops along the linear chain from the source node (col.2, lines 3-18, 32-41, col.7, lines 64-67);

- b. Programming the counter to have the initial value (col.2, lines 3-18, 32-41, col.7, lines 64-67);
- c. Adjusting the initial value of the counter by a preselected step in value at each node that the message packet is forwarded to (col.2, lines 3-18, 32-41, col.8, lines 44-61); and
- d. Accepting the message packet at a destination node when the counter value reaches a preselected trigger value without requiring address information in addition to the counter reaching the trigger value to accept the message packet (col.2, lines 3-18, 32-41, col.8, lines 44-61);

Wherein the preselected step in value is chosen so that the initial value reaches the trigger value when the packet has completed the desired number of node hops (col.2, lines 3-18, 32-41, col.8, lines 44-61).

9. As per claim 2, Judd further taught an identifier field containing an identifier to identify the message packet as having a relative address protocol (col.6, lines 14-15)

10. As per claims 3 and 4, Judd further taught a relative source destination field containing the initial value (col.6, lines 33-35, col.8, lines 43-50).

11. As per claim 6, Judd further taught a relative source address field for storing the initial value (col.6, lines 33-35, col.8, lines 43-50).

12. As per claim 7, Judd further taught that the initial value is an integer having an absolute value equal to the desired number of node hops and the counter is changed by a step in value of one at each node (col.7, lines 64-67).

13. As per claim 8, Judd further taught that the counter is programmed with the initial value and the counter is counted down by one at each node hop until a trigger value of zero is reached (col.2, lines 31-39, col.6, lines 61-64, col.7, lines 64-67).

14. As per claim 10, Judd further taught that the initial value is a linear function of the desired number of node hops (col.7, lines 64-67).

15. As per claim 11, Judd taught the invention substantially as claimed in claim 5. Judd further taught that wherein at least one node in the linear chain is a regenerator element (col.2, lines 31-39, col.8, 43-50).

16. As per claim 13, Judd taught the invention as claimed in claim 5. Judd further taught that the chain network comprises a portion of a ring network (col.2, lines 26-31, col.5, lines 61-67, col.6, lines 1; loop).

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 9, 12, 15-17 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Judd et al (Judd), US 5,465,251, in view of "Official Notice".

19. As per claim 9, Judd taught the invention substantially as claimed in claim 7. Judd did not specifically teach that the counter has an initial value of zero and the counter is counted up by one at each node hop until a trigger value equal to the initial value is reached. However, since Judd taught that the counter is programmed with the initial value and the counter is counted down by one at each node hop until a trigger value of zero is reached (col.2, lines 31-39, col.6, lines 61-64, col.7, lines 64-67), it would have been obvious to instead of decrement the counter but to increment it. Office Notice is taken that it would have been obvious to perform the adjustment of counting method in vice versa. It would have been obvious to one of ordinary skill in the art at the time the invention was made to set the counter with a zero initial value and have it counted up by one at each node hop until a trigger value equal to the initial value is reached instead of counting down to zero in Judd's method to reach the same result.

20. As per claim 12, Judd taught the invention substantially as claimed in claim 5. Judd did not specifically teach that the chain network is neither a virtual chain network. Official Notice is taken that it would have been obvious to implement Judd's teaching to all applicable network environments. It would have been obvious to one of ordinary skill in the art at the time the

invention was made to expand Judd's teaching of using hop counters to transmit packets in suitable networks such as virtual network or ring network.

21. As per claims 15 and 19, Judd taught the invention substantially as claimed in claims 14 and 18. Judd further taught the message packet to comprise a status query message and further request the destination node to send a status message packet back to the source node (col.11, lines 15-19). Judd did not specifically teach the message packet is sent back along the chain having a identification field and a counter. However, since Judd taught to use identification field and counter in the message packet, program initial values in hop counter, adjust counter by the preselected step in value at each node that the message packet is forwarded to, and accepting the message packet when the counter reaches the preselected trigger value (col.2, lines 3-18, 32-41, col.7, lines 64-67, col.8, lines 44-61), it would is obvious to implement such teachings in the status message packet as well (destination node becomes initiator). Official Notice is taken that it would have been obvious to implement the same teaching of using counter and initial value for returning messages in Judd's system. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include Judd's teachings of using identification field, counter, counter adjusting and packet accepting in not only the message packet sent from the source node, but also the status message packet sent from the destination node back to the source node as well.

22. As per claim 16, Judd taught the invention substantially as claimed in claim 15. Judd further taught that wherein at least one node in the linear chain is a regenerator element (col.2, lines 31-39, col.8, 43-50).

23. As per claim 17, Judd taught the invention substantially as claimed in claim 15. Judd further taught to:

- a. selecting a return message (col.11, lines 15-19);
- b. programming a second counter disposed in an address protocol of the return message to have a return value having equal magnitude of the initial value (col.2, lines 3-18, 32-41, col.7, lines 64-67);
- c. transmitting the second message in the return direction (col.1, lines 15-19);
- d. adjusting the second counter by the magnitude of the preselected value at each node that the message packet is forwarded to (col.2, lines 3-18, 32-41, col.8, lines 44-61); and
- e. accepting the return message packet at the source node when the second counter reaches the preselected trigger value (col.2, lines 3-18, 32-41, col.7, lines 64-67, col.8, lines 44-61).

24. As per claim 20, Judd taught the invention substantially as claimed in claim 19. Judd did not specifically teach to send a plurality of status query messages to a plurality of destination nodes, the destination nodes having initial values corresponding to nodes that are each a different number of node hops from the source node and to receive status message from responding

destination nodes; and determining the relative distance of responding nodes as a function of the initial value of each responding node; whereby a fault is isolated to a part of the network subsequent to the responding active node the greatest number of node hops from the source node. However, it would have been obvious to send a plurality of status query message to a plurality of destination nodes and to have the destination nodes to send status message back since Judd taught to send query message to a destination node (col.2, lines 6-9, col.11, lines 15-19) and to send acknowledgement message back to the source node (col.1, lines 15-19). Furthermore, it would have been obvious to use the initial value corresponding to nodes that are each a different number of node hops from the source node to determine the relative distance of them where network fault can be isolated subsequent to the farthest node away from the source node.

Official Notice is taken that it would have been obvious to send a plurality of status query message to a plurality of destination nodes. It would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the source node in Judd's method to send multiple status query message to multiple destination nodes to obtain status message and determine relative distance of the nodes.

25. As per claim 21, Judd taught the invention substantially as claimed in claim 14. Judd further taught the method to comprise the steps of:

- a. Sending a first status query message packet requesting a return status message from a destination node at least one node hope from the source node (col.11, lines 15-19);

b. Sending at least one subsequent status query message packet requesting a return status message from another destination node corresponding to a different number of node hops from the source node and recording whether the return status message is received at the source node; (col.11, lines 15-19; with different destination).

26. Judd did not specifically teach to detect a fault in a linear chain of regenerator nodes using the relative address protocol; and determine the node the greatest number of node hops from the source node replying to the status query message directed to it; wherein a fault is isolated to a portion of the chain network subsequent to the node the greatest number of node hops from the source node returning the corresponding status message. However, it would have been obvious to use the initial value corresponding to nodes that are each a different number of node hops from the source node to determine the node the greatest number of node hops from the source node where network fault can be isolated subsequent to it. Official Notice is taken that it is obvious that a fault may be detected when subsequent portion of the network of the node the greatest number of node hops from the source node is reached. It would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the source node in Judd's method to send multiple status query message to multiple destination nodes to obtain status message and determine relative distance of the nodes and to detect faults when exceeds greatest number of node hops from the source node.

Response to Arguments

27. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

28. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Flanagan, US 5,506,838.

29. A shortened statutory period for reply to this Office action is set to expire THREE MONTHS from the mailing date of this action.

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenny Lin whose telephone number is (571) 272-3968. The examiner can normally be reached on 8 AM to 5 PM Tue.-Fri. and every other Monday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ksl

November 19, 2004



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